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# INTRODUCTION

- ▶ Now a day In metropolitan cities air and noise pollution becomes serious Issues, due to high decibels and toxic gases present in the environment which directly effect on human health and thus needs a special attention. Therefore, it has now become necessary to control the pollution to ensure healthy livelihood and better future.
- ▶ The system uses air sensors to sense presence of harmful gases/compounds in the air and constantly transmit this data. Also, system keeps measuring sound level and reports it.
- ▶ It processes this data and transmits it over the application. This allows authorities to monitor air pollution in different areas and act against it.
- ▶ Also, authorities can keep a watch on the noise pollution near schools, hospitals and no honking areas, and if system detects air quality and noise issues it alerts authorities so they can take measures to control the issue.



## OBJECTIVE AND SCOPE

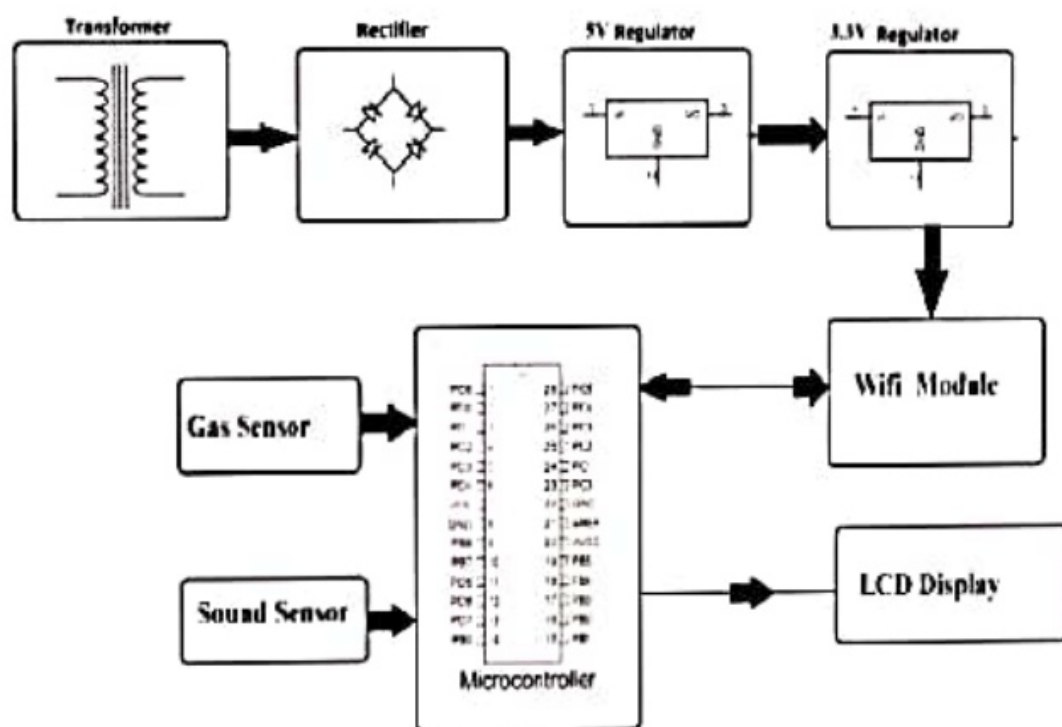
- ▶ To monitor and check air quality and keep it under control for a better future and healthy living for all.
- ▶ The system proposed here also monitors sound pollution in particular areas so that authorities can act against it.



## METHODOLOGY

- ▶ This system is made to fulfill the purpose and need of the society to monitor and check the live air quality and sound pollution in an area through IOT.
- ▶ The system uses air sensors to check the presence of harmful and hazardous gases/ compounds in the air and also uses the sound sensor to keep measuring sound level in the surroundings. These sensors interact with Arduino which processes this data and then transmit it over an application. To send the data over remote location WIFI modem is also installed.
- ▶ This system would contribute as a part in the building of a healthy society.

## Schematic Diagram of Implementation Model



# TOOLS AND TECHNOLOGIES

## Hardware Requirements

- ▶ Air Pollution Sensor
- ▶ Sound Sensors
- ▶ Atmega Microcontroller
- ▶ Wi-Fi Modem
- ▶ LCD Display
- ▶ Crystal Oscillator
- ▶ LED's
- ▶ Resistors
- ▶ Capacitors
- ▶ Diodes
- ▶ Push Button
- ▶ Breadboard
- ▶ IC
- ▶ Transformer

## Software Requirements

- Arduino Compiler
- MC Programming Language: C
- IOT Gecko

# Gas Sensor

- ▶ Gas sensor detects Pollution.
- ▶ MQ135: It is used to detect various gases such as alcohol, benzene, carbon dioxide etc. This Sensor gives output in analog format. This Sensor operates on 5V supply. This Sensor can be used in buildings and offices.
- ▶ MQ135 Config:  
GND - GND  
VCC - 5V  
A0 - A3



# ***Sound Sensor***

- It is used to Detect sound intensity.
- This sensor operates on 3.5V-5V. This sensor gives output in High and Low.

## ▸ SOUND SENSOR Config:

GND - GND

VCC - 5V





# *Wi-Fi module*

▸ A WIFI module is used to communicate with IOT platform.

▸ NODEMCU Config:

GND - GND

VCC - 5V

RX – TX



## COST ANALYSIS

S. No.	Hardware Components	Specification	Quantity	Cost
1	Air Pollution Sensor	MQ 135	1	₹ 169
2	Sound sensor	LM 393	1	₹ 100
3	Atmega Microcontroller	Atmega328-PU	1	₹ 1000
4	Wi-Fi Module	ESP8266	1	₹ 600
5	LCD Display	2 x 16	1	₹ 500
6	Crystal Oscillator	-	1	₹ 30
7	LED	-	1	₹ 2
8	Resistors	1 k $\Omega$	6	₹ 12
9	Capacitors	0.1 $\mu$ F or 10 $\mu$ F	8	₹ 40
10	Transformer	15 V/500 mA	1	₹ 75
11	Breadboard	-	1	₹ 280
12	Push Button	-	1	₹ 25
13	IC	-	1	₹ 20
14	Diode	IN4007	1	₹ 5
<b>TOTAL COST</b>				<b>₹ 2858</b>